Jurnal Prisma

by Sari Herlina

PRISMA
Volume 11, No. 1, Juni 2022
https://jurnal.unsur.ac.id/prisma

p-ISSN 2089 3604
e-ISSN 2614 4611

BRANSFORD & STEIN THEORY: MATHEMATICALTHINKING PROCESS OF PROSPECTIVE MATHEMATICS TEACHER STUDENTS IN SOLVING STATISTICAL PROBLEMS BASED ON COGNITIVE LEARNING STYLE

Sari Herlina[1*], Reni Wahyuni[2], Dola Julianti[3], Andini Novianti[4]
[1,2,3,4] Universitas Islam Riau, Kota Pekanbaru
*sariherlina99@edu.uir.ac.id

Submitted* : *DD-MM-YY	***Revised*: *DD-MM-YY***	***Accepted*: *DD-MM-YY***	***Published:DD-MM-YY***

ABSTRAK

Proses berpikir matematis yang baik bagi mahasiswa calon guru matematika merupakan keniscayaan yang perlu dimiliki. Tujuan penelitian ini untuk mendeskripsikan profil proses berpikir matematis mahasiswa calon guru matematika berdasarkan gaya belajar *Field Dependent* dan *Field Independent* dalam memecahkan masalah matematika. Jenis penelitiannya adalah penelitian deskriptif-kualitatif. Subjek penelitian yang diambil adalah mahasiswa pendidikan matematika sebanyak 3 orang untuk gaya belajar tipe *Field Dependent* dan 3 orang untuk tipe *Field Independent*. Teknik pengumpulan data, yaitu: tes kemampuan berpikir matematis pada materi statistika, dan wawancara. Analisis data menggunakan tahapan yaitu: (1) mereduksi data; (2) menyajikan data; (3) membuat kesimpulan. Hasil penelitian menunjukkan bahwa proses berpikir matematis mahasiswa calon guru matematika adalah 1) gaya belajar *Field Independent* lebih sistematis dalam membaca soal cerita, mampu mengidentifikasi informasi penting dan mengklasifikasikannya ke dalam model/variabel matematika. Sementara mahasiswa *field dependent* cenderung membaca soal secara global dan kurang fokus pada detail; 2) dalam memahami masalah, mahasiswa FI lebih cepat memetakan masalah ke dalam representasi matematika yang relevan. Mahasiswa FD berpikir secara deduktif dan perlu contoh konkret untuk memahami masalah; 3) Mahasiswa FI lebih kreatif dan luwes dalam menyusun strategi penyelesaian masalah menggunakan beragam konsep dan prosedur matematika. Mahasiswa FD lebih sering menggunakan strategi standar yang pernah diajarkan. 4) Mahasiswa FI teliti dan rinci dalam menginterpretasikan solusi kembali ke konteks permasalahan asal. Mahasiswa FD cenderung fokus pada hasil akhir tanpa mengaitkan dengan makna permasalahan.

Kata Kunci : *Field dependent*; *field independent*; gaya belajar kognitif; proses berpikir matematis; teori Bransford & Stein.

ABSTRACT

A good mathematical thinking process for prospective students, mathematics teachers is a necessity that needs to be had. The purpose of this study is to describe the profile of the mathematical thinking process of prospective mathematics teacher students based on Field Dependent and Field Independent learning styles in solving mathematical problems. The type of research is descriptive-qualitative research. The research subjects taken were 3 mathematics education students for Field Dependent type learning styles and 3 people for Field Independent types. Data collection techniques, namely: tests of mathematical thinking skills on statistical material, and interviews. Data analysis uses stages, namely: (1) data reduction; (2) present data; (3) make conclusions. The results showed that the mathematical thinking process of prospective mathematics teacher students is 1) The field of independent learning style is more systematic in reading story problems, able to identify important information and classify it into mathematical models / variables. While field-dependent students tend to read questions globally and focus less on details; 2) in understanding the problem, FI students more quickly map the problem into relevant mathematical representations. FD students think deductively and need concrete examples to understand problems; 3) FI students are more creative and flexible in developing problem-solving strategies using various mathematical concepts and procedures. FD students more often use the standard strategies that have been taught. 4) FI students are meticulous and detailed in interpreting solutions back to the context of the original problem. FD students tend to focus on the end result without relating to the meaning of the problem.

Keywords: cognitive learning style; field dependent; field independent; cognitive learning style; mathematical thinking process; Bransford & Stein theory.

INTRODUCTION

The ability to think mathematically is important in learning mathematics. Students' success in learning one of them is influenced by the ability to think. Problems related to everyday life and things experienced by students can slowly cultivate the habit of thinking and imagining well (Muhtadi et al., 2019). Mathematical thinking is a complex activity, so it is important to equip students with this ability from the basic level of Education (Rahmawati et al., 2024). Mathematical thinking as a mental process that comes into play when applying mathematics to solve problems (Danoebroto et al., 2024). Mathematical thinking includes the ability, namely: abstract, representation, and verification to find solutions to mathematical problems (Sa'adah et al., 2023). According To (Haji, 2019), mathematical thinking includes understanding mathematical concepts, using mathematical reasoning, and solving and interpreting solutions to mathematical problems. Teachers need to understand the profile of students ' mathematical thinking processes to design effective learning.

Cognitive styles are generally acquired and formed over a long period as a continuum. Many choose the distinction based on psychological aspects, namely field-independent (FI) and field-dependent (FD) (Kozhevnikov, 2007). As one of the characteristics of students, the position of cognitive style in the learning process is very important to be considered by teachers or learning planners because the learning plan is designed and prepared with attention to cognitive style factors means providing learning instructions by the characteristics and potential of students (Losenno et al., 2020). With this kind of planning, learning conditions will be created much better because this type of learning does not interfere with the rights of students. In addition, learning is adapted to the student's cognitive processes and development (Prayekti, 2018).

On the other hand, field-independent (FI) and field-dependent (FD) cognitive learning styles are thought to influence students ' thinking processes. According to research (Witkin et al., 1977), FI students tend to be analytical, independent, and not easily affected by external stimuli in learning. While FDs are more environmentally impressionable, tend to see problems globally and favor group learning.

Related to that, (Rosadi, 2017) study shows FI students are better at solving mathematical problems than FD. In addition, several previous studies have examined the effect of cognitive style on the ability to think and solve mathematical problems, including: (Witkin et al., 1977) found that students with field-independent styles showed better analytical skills than field-dependent in solving problems.

However, there are not many studies that specifically analyze the profile of students ' mathematical thinking processes based on FI and FD cognitive styles. Most of the research only compared his eventual abilities, not his thought process. Novelty this study will describe the profile of the mathematical thought process of FI and FD students in depth at each stage. The results are expected to enrich the theory of Mathematical Thinking profile of students in terms of aspects of cognitive style. However, research on the profile of students ' mathematical thinking processes based on learning styles is still very limited. Therefore, it is necessary to research to describe the profile of the mathematical thinking process of FI and FD students to develop adaptive mathematics learning.

This study analyzes the mathematical thinking process of students using the IDEAL stage of The Theory of Bransford & Stein (Bransford & Stein, 1993). IDEAL stands for *I-Identify Problems and opportunities, D-Define goals, E-Explore possible strategies, A-Anticipated outcome and act, dan L-Look back and learn*. Explanation of IDEAL problem solving is described as follows:

1. *Identify Problems and opportunities*

The first component of the IDEAL approach is to identify potential problems and treat them as opportunities/opportunities to do something creative. A person who can identify important problems and treat them as opportunities/opportunities is often the most successful in his field. So, the ability to identify problems is an important characteristic to solve problems. Ability in identifying problems, allowing to be able to choose the right strategy in solving the problem.

2. *Define goals*

The second component in the IDEAL is goal setting. Setting/defining goals is different from identifying problems. Differences in goals often lead to differences in reflecting or determining strategies for understanding the problem. By knowing the purpose of a problem, a person will be able to determine the appropriate strategy for solving the problem.

3. *Explore possible strategies* (Mengeksplorasi kemungkinan strategi)

The third component of the IDEAL is to explore possible appropriate strategies for solving the problem. Exploring alternative problem-solving strategies, can involve reanalyzing goals by considering possible options or strategies for achieving those goals.

4. *Anticipated outcome and act* (Hasil dan tindakan yang diantisipasi)

The previous three components emphasized the importance of identifying problems and opportunities to be creative, define goals, and explore plans or strategies for finding solutions. Once a strategy is chosen, it is important to anticipate possible outcomes and then take action based on that strategy. Anticipating possible outcomes can save a person from actions that may not be appropriate in problem solving.

5. *Look back and learn* (Melihat dan belajar)

The last component of the IDEAL component is to see the true impact of your strategy and learn from experience. To learn from experience, one needs to re-examine their performance in more detail.

Furthermore, to determine the students thinking process, it is necessary to analyze the students' mathematical thinking process based on the answers they wrote. Zuhri stated that the analysis of thought processes can be grouped into categories of thought processes (Yanti & Syazali, 2016). Zuhri (Yanti & Syazali, 2016) revealed that the indicators of the thought process as follows:

1. Conceptual thinking process.

   The process of conceptual thinking is the ability to reveal the known in the problem, to reveal the Asked, to use the concepts that have been learned in answering the question, and to explain the elements of the concept solved.

2. Semiconceptual thinking process
   The semiconceptual thinking process is less able to express the known in the problem, less able to express the Asked, less able to use the concepts that have been learned in answering the question, and less able to explain the elements of the concept solved.
3. Computational thinking process
   The computational thinking process is not able to express the known in the problem, not able to express the asked, in answering the question is often separated from the concepts that have been taught/learned, not able to explain the steps used in solving the problem.

Based on the description above, this study focuses on assessing, analyzing, and describing the mathematical thinking process of students in solving statistical problems.

METHOD

This study uses a qualitative approach. A case study was conducted on the mathematical thinking profile of prospective mathematics teacher students based on their cognitive style.

The subjects of this study were 3 students of mathematics teacher candidates in the Mathematics Education Study program who have field-independent cognitive style and 3 students of mathematics teacher candidates with field-dependent style.

The main instrument is the researcher himself. The Data were collected through mathematical thinking process test instruments on Educational Statistics materials and interviews. Meanwhile, the GEFT (Group Embedded Figure Test) instrument was used to identify the cognitive style of the study subjects (Khatib & Hosseinpur, 2011).

Data collection using Mathematical Thinking Process Written Test, Interview. The collected Data is then analyzed through Miles and Huberman models including data reduction, data presentation, and conclusion.

Data on statistical test results on sub-material sampling techniques were analyzed based on indicators of thought processes that meet the conceptual thinking process, semiconseptual, and computational Zuhri (Yanti & Syazali, 2016) and problem-solving steps by Bransford and Stein. Description of thought process indicators adapted from Zuhri which is described as a mathematical thought process presented in Table 1 below.

Table 1. Mathematical Thought Process Indicators

Conceptual thinking process	**Semiconceptual thinking process**	**Computational thinking process**
1. Students can identify a given problem by formulating what is known from the problem with their language or mathematical sentences	1. Students are less able to identify a given problem by formulating what is known from the problem with their language or mathematical sentences	1. Students are unable to identify a given problem by formulating what is known from the problem with their language or mathematical sentences
2. Students can formulate what is asked from the problem with their language or mathematical sentences	2. Students are less able to formulate what is asked from the problem with their language or mathematical sentences	2. Students are not able to formulate what is asked of the problem with their language or mathematical sentences

3. Students can choose the right strategy to solve a given problem	3. Students are less able to choose the right strategy to solve a given problem	3. Students are not able to choose the right strategy to solve a given problem
4. Students can use the concepts learned appropriately	4. Students are less able to use the concepts learned appropriately	4. Students are not able to use the concepts learned properly
5. Students can re-examine the answers that have been done	5. Students are less able to re-examine the answers that have been done	6. Students are not able to re-examine the answers that have been done

RESULTS AND DISCUSSION

Profile description mathematical thinking process of prospective teacher students reviewed cognitive learning style took six students analyzed. Students of mathematics teacher candidates consist of three people with Field field-independent learning styles and three with Field Dependent learning styles. Each group consists of high, medium, and low academic ability. It is assessed from the results of the student's answer to examine the mathematical thinking process by looking at the steps of solving the problem based on Bransford and Stein (Bransford & Stein, 1993).

The problem used to analyze the mathematical thinking process of prospective students of mathematics teachers is a matter of Educational Statistics. The problem is

> Terdapat 1000 orang calon mahasiswa baru pendidikan matematika di suatu perguruan tinggi yang terdiri dari 560 perempuan dan 440 laki-laki. Kemudian dari hasil tes diketahui rata-rata hitung nilai masuk perguruan tinggi pada kelompok perempuan adalah 78 dan deviasi standarnya yaitu 3,5, sedangkan rata-rata nilai masuk perguruan tinggi pada kelompok laki-laki adalah 80 dan deviasi standarnya yaitu 11,5. Calon mahasiswa yang diterima di perguruan tinggi tersebut hanya untuk nilai lebih dari atau sama dengan 85. Periksalah apakah tepat bahwa mahasiswa yang banyak diterima adalah mahasiswa laki-laki? Buktikan manakah calon mahasiswa yang lebih banyak masuk perguruan tinggi?

presented as follows:

1) Mathematical thinking process of students with field Dependent cognitive learning style

Mathematical thinking process of prospective mathematics teachers with field-dependent cognitive learning style Taken 3 people. On the other hand, it is also analyzed from the academic ability of students. The results of the recapitulation of the student's mathematical thinking process are presented in the following Table 2:

Table 2. Data results of Mathematical Thinking process with Bransford and Stein stages

Categories Of Cognitive Learning Styles	Category Subject Ability	Subject Number	Bransford and Stein stages	Performing Mathematical Thought Process	Conclusion Mathematical Thought Process
	High	S-1	1	conceptual	
			2	conceptual	
			3	conceptual	conceptual
			4	semiconceptual	
			5	computational	
	Medium	S-2	1	semiconceptual	
			2	computational	
Field Dependent			3	semiconceptual	semiconceptual
			4	semiconceptual	
			5	computational	
	Low	S-3	1	computational	
			2	computational	
			3	computational	computational
			4	computational	
			5	computational	

The answers of FD group Students in answering the questions given are described based on high, medium, and low academic ability. The following are the answers of FD high category students:

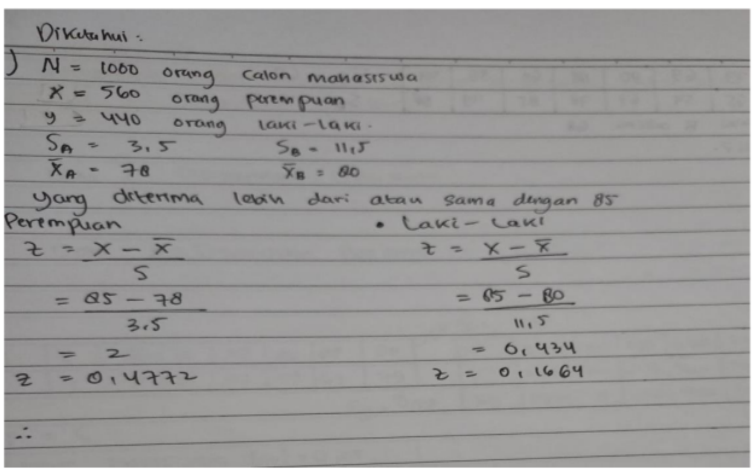

Figure 1. FD cognitive learning style students with high academic ability

Students in the FD cognitive learning style with high academic ability, it is seen that students can identify problems, formulate problems that are presented even though they are not described correctly, can choose the right strategy, but have not been able to apply the concept correctly, and the student does not check back on the answers he has done. For students in the FD group with a high category, the thought process is still dominant conceptual. Furthermore, for students with FD learning style in the category of medium academic ability, the answers in solving the given problems are presented in the following figure:

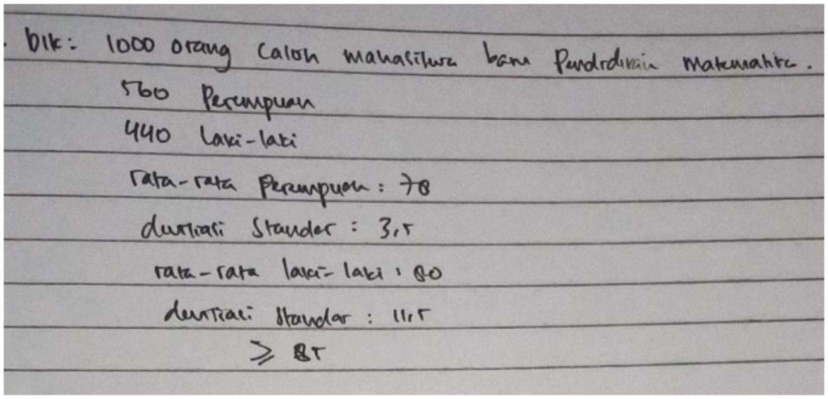

Figure 2. FD cognitive learning style students with medium academic ability

In the group of students who FD cognitive learning style with moderate academic ability. The thought process can identify problems, less able to formulate a given problem, and does not show the ability to choose the right strategy and use the strategy appropriately. So as not to check the answer. In this student, the process of mathematical thinking tends to be semiconceptual. For the answers of FD group Students with low ability, the answers can be seen in Figure 3 below:

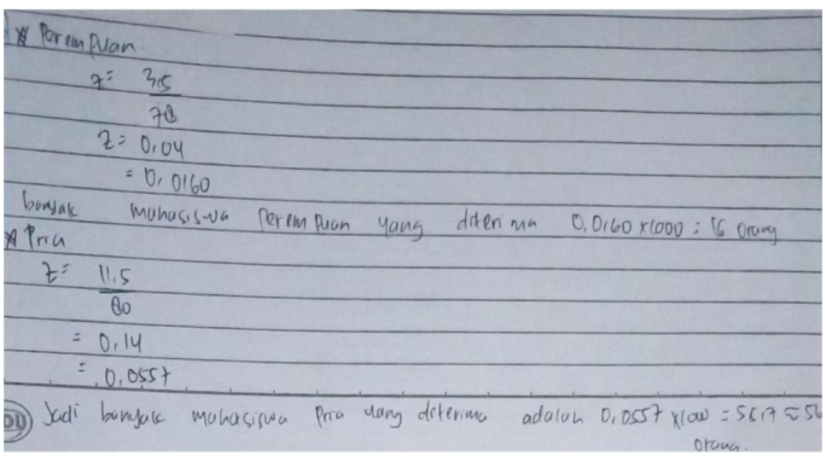

Figure 3. FD cognitive learning style students with low academic ability

In Figure 3 above, students who FD cognitive learning style with low academic ability see that the answer does not show the ability to identify the problem given, unable to formulate what is asked in the problem, so that students are not appropriate in determining the strategy used and not appropriate in using the concepts learned. Students in the FD group with low academic ability also did not double-check the answers they did.

The thought process of students in this category is included in the category of computational.

2) Mathematical thinking process of students with field-independent cognitive learning style

Mathematical thinking process of prospective mathematics teachers with cognitive learning style field independently taken 3 people. On the other hand, it is also analyzed from the academic ability of students. The results of the recapitulation of the student's mathematical thinking process are presented in the following table 3:

Table 3. Data results of Mathematical Thinking process with Bransford and Stein stages

Categories Of Cognitive Learning Styles	Category Subject Ability	Subject Number	Bransford and Stein stages	Performing Mathematical Thought Process	Conclusion Mathematical Thought Process
	High	S-1	1	Conceptual	
			2	Conceptual	
			3	Conceptual	Conceptual
			4	Conceptual	
			5	Conceptual	
	Medium	S-2	1	Conceptual	
			2	Conceptual	
Field Independent			3	Conceptual	Conceptual
			4	Conceptual	
			5	Semiconceptual	
	Low	S-3	1	Computational	
			2	Computational	
			3	Computational	Computational
			4	Computational	
			5	Computational	

Results of student problem solving in solving problems in Field Independent students in high, medium and low groups.

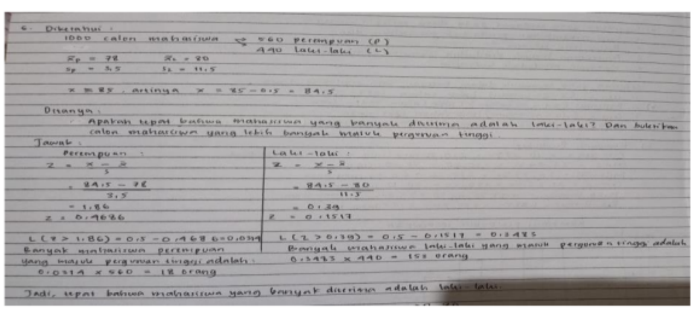

Figure 4. Answer FI students with high academic ability

In the picture above, FI students can identify the problem, formulate what is asked, choose the right method to solve the given problem, and double-check the answers that have been given. Based on the student's answer, it can be seen that his thought process is included in the conceptual group. Furthermore, FI students with moderate academic ability answers to their work can be seen in Figure 2 below:

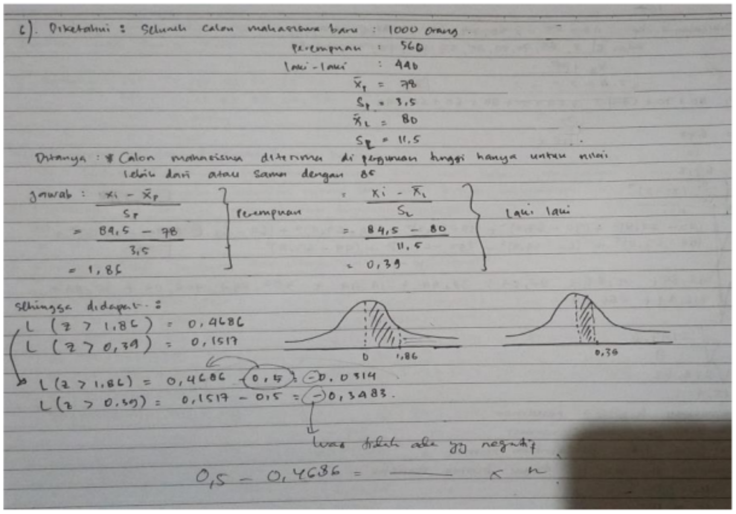

Figure 5. FI student answer’s medium academic ability

In Figure 5, students who are FI on ability are able to identify the problem, formulate what is asked, and choose the right method to solve a given problem, but are less able to recheck the answers that have been done. FI students with moderate academic ability, the thought process is still dominant conceptual. Furthermore, for FI students in the low category, the answers to the results of their work can be seen in Figure 6 below:

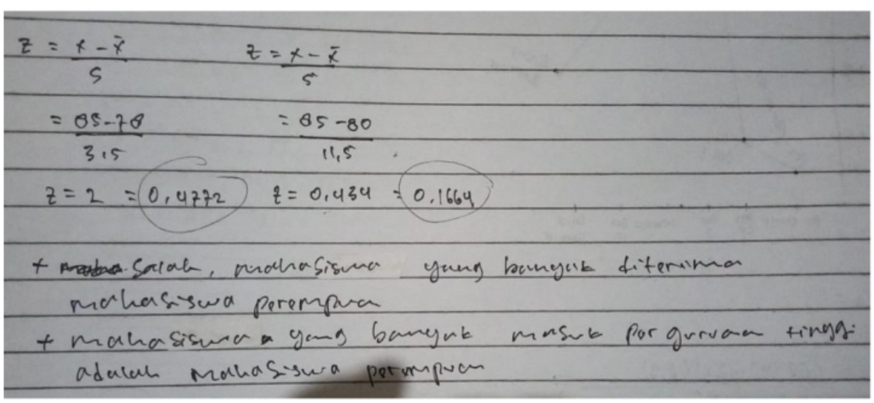

Figure 6. Students with low academic ability

In Figure 6, FI students with low abilities are not able to identify problems and formulate what is asked, but they are able to determine the right problem-solving strategies to use. However, students have not been able to use the strategy properly and did not check the answers they did.

Discussion

The results obtained from evaluating the cognitive processes of college students in the context of solving statistical questions show differences. The differences in cognitive strategies used by college students can be attributed to the analysis of their responses, which depend on their understanding or knowledge base. In solving statistical problems, students demonstrate the ability to identify the right problem-solving. However, their confidence seems to be lacking, resulting in the re-application of various strategies when engaging with problems. This phenomenon shows a lack of understanding of the basic concepts in understanding the concept of Statistics.

Cognitive learning styles, field-dependent always work on a problem based on the context being studied, while field-independent is usually independent of the context being studied. This greatly affects the way students understand and solve math problems. Students with a field-independent style tend to be better at analyzing and solving complex problems because they can separate key information from context. In contrast, students with field-dependent styles rely more on context and relationships between elements in solving mathematical tasks. This can be seen from the answers of students in solving statistical problems given. So, cognitive style also affects students in their thinking process. The results of a review of the IDEAL steps (Bransford & Stein, 1993) in solving mathematical problems show different mathematical thinking processes between field-dependent and field-independent mathematics teacher candidates.

The results of this investigation showed that students with high cognitive abilities showed conceptual thinking processes, while those with medium abilities showed semi conceptual thinking processes, and students classified as low abilities were mainly involved in computational thinking processes. This study posits implications for educational practice, as educators can design instructional strategies that facilitate the advancement of low-ability students to a moderate level while allowing moderate students to move into the high-ability category (Kozhevnikov, 2007; Lidinillah, 2012). Students involved in conceptual and semi conceptual thought processes are adept at addressing and solving the problems presented. In contrast, students in the computing category require a solid understanding of the underlying concepts before problem-solving. A significant limitation of the study is the absence of comprehensive interviews with study participants. For future researchers investigating similar issues, it is advisable to include interviews to ensure student thought processes are aligned with the Brandford and Stein stages.

The provides a lot of contribution for students in the development of holistic thinking processes and divergen thinking (Pásztor et al., 2015). The mathematical thinking process that is expected to exist in today's learners based on curriculum guidance is a high-level thinking process (high-order thinking), while prospective teachers, especially prospective mathematics teachers, students need to have the ability to not only understand concepts in depth but also be able to convey material to students with different learning styles. This article highlights the importance of a prospective teacher's awareness of their learning style and that it can affect their teaching methods. For example, a prospective teacher with a field-independent learning style needs to notice that students with a field-dependent learning style may need a more contextual and visual approach.

The results of this study can contribute to designing mathematical learning strategies that support a variety of cognitive learning styles. Educators can use visual aids to support students with field-dependent learning styles, while students with field-independent learning styles by providing independent exercises for students with to improve their analytical skills (Kozhevnikov, 2007). Apart from that, the right learning model can accommodate students' learning styles so that they can build students' problem-solving abilities (Fadiana, 2015).

Limitations of this study in the form of the size of the study subjects are small enough to allow bias in identifying learning styles. In addition, the focus of the material is limited to statistical material and the results of this study also cannot be generalized due to qualitative research. Further research directions may include the influence of other factors, such as learning motivation, teaching experience, or educational curriculum on mathematical thinking processes.

CONCLUSION

Conclusion the difference in the Mathematical Thinking process between students with field-independent and field-dependent learning styles:

1. Field-independent students are more systematic in reading story Questions, and able to identify important information and classify it into mathematical models/variables. Meanwhile, field-dependent students tend to read questions globally and focus less on details.
2. In understanding the problem, FI students more quickly map the problem into a relevant mathematical representation. FD students think deductively and need concrete examples to understand issues.
3. FI students are more creative and flexible in developing problem-solving strategies using a variety of mathematical concepts and procedures. FD students more often use standard methods that have been taught.
4. FI students are meticulous and detailed in interpreting solutions back to the context of the original problem. FD students tend to focus on the result without associating it with the meaning of the problem.

REFERENCES

Bransford, J. D., & Stein, B. S. (1993). *The Ideal Prblem Solver (2nd ed.)*. W. H. Freeman and Company.

Danoebroto, S. W., Suyata, & Jailani. (2024). Teachers' Efforts to Promote Students' Mathematical Thinking Using Ethnomathematics Approach. *Mathematics Teaching-Research Journal*, *16*(2), 207–231.

Haji, S. (2019). Analisis Kemampuan Berpikir Matematis Mahasiswa melalui Model Pembelajaran Auditory Intellectually Repetition. *Jurnal Elemen*, *5*(2), 213–226. https://doi.org/https://doi.org/10.29408/jel.v5i2.

Khatib, M., & Hosseinpur, R. M. (2011). *On the Validity of the Group Embedded Figure Test (GEFT)*. *2*(3), 640–648. https://doi.org/10.4304/jltr.2.3.640-648.

Kozhevnikov, M. (2007). *Cognitive Styles in the Context of Modern Psychology : Toward an Integrated Framework of Cognitive Style*. *133*(3), 464–481. https://doi.org/10.1037/0033-2909.133.3.464

Lidinillah, D. A. M. (2012). Educational Design Research : a Theoretical Framework for Action. *Jurnal UPI*, *1*, Bandung: UPI Kampus Tasikmalaya.

Muhtadi, D., Supratman, & Hermanto, R. (2019). The students' mathematical critical thinking process reviewed from the cognitive style. *Journal of Physics: Conference Series*, *1188*, 1–7. https://doi.org/10.1088/1742-6596/1188/1/012082

Pásztor, A., Molnár, G., & Csapó, B. (2015). Technology-based assessment of creativity in educational context: The case of divergent thinking and its relation to mathematical achievement. *Thinking Skills and Creativity*, *18*, 32–42. https://doi.org/10.1016/j.tsc.2015.05.004

Prayekti. (2018). The Influence of Cognitive Learning Style and Learning Independence on the Students' Learning Outcomes. *Higher Education Studies*, *8*(2), 37–46. https://doi.org/10.5539/hes.v8n2p37

Rahmawati, R. D., Sugiman, Wangid, M. N., & Purnomo, Y. W. (2024). Designing Model of Mathematics Instruction Based on Computational Thinking and Mathematical Thinking for Elementary School Student. *Mathematics Teaching-Research Journal*, *16*(1), 143–166.

Rosadi, I. (2017). Eksperimentasi Pendekatan Open-Ended dan Problem Based Learning ditinjau dari Kemampuan Spasial dan Gaya Kognitif Field Independent. *Al-Jabar : Jurnal Pendidikan Matematika*, *8*(1), 73–82. https://doi.org/https://doi.org/10.24042/ajpm.v8i1.1921

Sa'adah, N., Faizah, S., Sa'dijah, C., Khabibah, S., & Kurniati, D. (2023). Students' Mathematical Thinking Process in Algebraic Verification Based on Crystalline Concept. *Mathematics Teaching-Research Journal*, *15*(1), 90–107.

Witkin, H. A., Moore, C. A., Goodenough, D. R., & Cox, P. W. (1977). Field-dependent and field-independent cognitive styles and their educational implications. *Review of Educational Research*, *47*(1), 1–64. https://doi.org/https://doi.org/10.3102/0034654

Yanti, A. P., & Syazali, M. (2016). Analisis Proses Berpikir Siswa dalam Memecahkan Masalah Matematika berdasarkan Langkah-Langkah Bransford dan Stein ditinjau dari Adversity Quotient. *Al-Jabar: Jurnal Pendidikan Matematika*, *7*(1), 63–74. https://doi.org/10.24042/ajpm.v7i1.132

Jurnal Prisma

ORIGINALITY REPORT

14%	9%	9%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	ojs.unimal.ac.id Internet Source	2%
2	www.tntech.edu Internet Source	2%
3	Prayekti -. "The Influence of Cognitive Learning Style and Learning Independence on the Students' Learning Outcomes", Higher Education Studies, 2018 Publication	2%
4	D Muhtadi, Supratman, R Hermanto. "The students' mathematical critical thinking process reviewed from the cognitive style", Journal of Physics: Conference Series, 2019 Publication	1%
5	Mohammad Tohir. "Prospective Teachers' Expectations of Students' Mathematical Thinking Processes in Solving Problems", European Journal of Educational Research, 2020 Publication	1%

6	Achmadi Achmadi, Septiani Septiani, Wulan fitriani Safari. "SUB-ACUTE TOXICITY TEST OF ULTRAVIOLET C (UVC)-IRADIATED FOOD ON WHITE RATS (Rattus novergicus)WISTARSTRAIN", BIOLOVA, 2024 Publication	1 %
7	Seymour Wapner, Jack Demick. "Field Dependence-Independence - Cognitive Style Across the Life Span", Psychology Press, 2014 Publication	1 %
8	jurnal.unsur.ac.id Internet Source	1 %
9	disabuse.eu Internet Source	1 %
10	Margaretha Madha Melissa, Laurentius Anindito Wisnu Susanto, Eri Yudanti, Dinda Salsabila. "Profile of mathematical communication skills of prospective mathematics teachers", AIP Publishing, 2023 Publication	1 %
11	mtrj.commons.gc.cuny.edu Internet Source	1 %
12	Shafqat Zaidi, Fariha Yasmeen, Vahid Nimehchisalem, Zalina Mohd Kasim, Afida Mohammad Ali. "Effects of Language Proficiency and Learning Styles on the Acquisition of Conditions and Violations of It-	1 %

Cleft Constructions", Open Journal of Modern Linguistics, 2024

Publication

Exclude quotes On

Exclude bibliography On

Exclude matches < 1%

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to use an article before this word.

S/V This subject and verb may not agree. Proofread the sentence to make sure the subject agrees with the verb.

Article Error You may need to use an article before this word.

PAGE 2

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Article Error You may need to use an article before this word.

PAGE 3

Confused You have used **A** in this sentence. You may need to use **an** instead.

Proper Noun If this word is a proper noun, you need to capitalize it.

Article Error You may need to use an article before this word.

Article Error You may need to use an article before this word. Consider using the article **the**.

Article Error You may need to use an article before this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Proper Noun If this word is a proper noun, you need to capitalize it.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Proper Noun If this word is a proper noun, you need to capitalize it.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to use an article before this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Article Error You may need to use an article before this word.

Article Error You may need to remove this article.

Article Error You may need to use an article before this word. Consider using the article **the**.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Missing "," You may need to place a comma after this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Article Error You may need to use an article before this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Dup. You have typed two **identical words** in a row. You may need to delete one of them.

Proofread This part of the sentence contains a grammatical error or misspelled word that makes your meaning unclear.

S/V This subject and verb may not agree. Proofread the sentence to make sure the subject agrees with the verb.

Article Error You may need to use an article before this word.

Word Error Did you type "**the**" instead of "**they**," or have you left out a word?

Verb This verb may be incorrect. Proofread the sentence to make sure you have used the correct form of the verb.

Article Error You may need to use an article before this word.

PAGE 5

Proofread This part of the sentence contains a grammatical error or misspelled word that makes your meaning unclear.

Proofread This part of the sentence contains a grammatical error or misspelled word that makes your meaning unclear.

S/V This subject and verb may not agree. Proofread the sentence to make sure the subject agrees with the verb.

Article Error You may need to use an article before this word.

Article Error You may need to remove this article.

Garbled Grammatical or spelling errors make the meaning of this sentence unclear. Proofread the sentence to correct the mistakes.

Verb This verb may be incorrect. Proofread the sentence to make sure you have used the correct form of the verb.

Article Error You may need to use an article before this word.

Missing "," You may need to place a comma after this word.

Article Error You may need to use an article before this word. Consider using the article **the**.

Missing "," You may need to place a comma after this word.

PAGE 6

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to use an article before this word.

PAGE 7

Article Error You may need to remove this article.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Missing "," You may need to place a comma after this word.

Prep. You may be using the wrong preposition.

PAGE 8

Article Error You may need to use an article before this word. Consider using the article **the**.

Article Error You may need to use an article before this word. Consider using the article **the**.

PAGE 9

Article Error You may need to use an article before this word.

PAGE 10

Article Error You may need to remove this article.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Missing "," You may need to place a comma after this word.

PAGE 11

Article Error You may need to remove this article.

Article Error You may need to use an article before this word.

Dup. You have typed two **identical words** in a row. You may need to delete one of them.